

## CLAIMS

What is claimed is:

- 1 1. A process for forming a cured fluoroelastomer film comprising the steps of:  
2 providing a fluoroelastomer latex;  
3 adding an organic peroxide curing agent and coagent to the latex to  
4 form a curable coating composition;  
5 forming a film with the curable coating composition; and  
6 curing the film at elevated temperature.
- 1 2. The process of claim 1, where the organic peroxide curing agent is a dialkyl  
2 peroxide, peroxyester, diacyl peroxide, ketone peroxide, peroxydicarbonate,  
3 hydroperoxide, peroxyketal, or mixture thereof.
- 1 3. The process of claim 2, where the dialkyl peroxide curing agent is a dicumyl  
2 peroxide, 2,5-dimethyl-2,5-di-(*t*-butylperoxy)hexane, *t*-butyl cumyl peroxide,  $\alpha,\alpha'$ -  
3 bis(*t*-butylperoxy)diisopropylbenzene, di-*t*-butyl peroxide, 2,5-dimethyl-2,5-di-(*t*-  
4 butylperoxy)hexyne-3, or a mixture thereof.
- 1 4. The process of claim 2, where the peroxyester curing agent is  $\alpha$ -cumyl peroxy-  
2 neodecanoate, 1,1-dimethyl-3-hydroxy-butyl peroxyneohexanoate,  $\alpha$ -cumyl  
3 peroxy-heptanoate, *t*-amyl peroxyneodecanoate, *t*-amyl peroxy-pivalate, *t*-butyl  
4 peroxyneodecanoate, *t*-butyl peroxy-pivalate, 1,1-dimethyl-3-hydroxy-butyl peroxy  
5 2-ethylhexanoate, 2,5-dimethyl 2,5 di(2-ethylhexanoylperoxy)hexane, *t*-amyl  
6 peroxy 2-ethylhexanoate, *t*-butyl peroxy 2-ethylhexanoate, *t*-butyl peroxy  
7 isobutyrate, *t*-butyl peroxyacetate, *t*-amyl peroxyacetate, *t*-butyl perbenzoate, *t*-  
8 amyl perbenzoate, di-*t*-butyl diperoxyphthalate, *oo-t*-butyl *o*-isopropyl  
9 monoperoxy carbonate, 2,5-dimethyl 2,5-di(benzoylperoxy)hexane, *oo-t*-butyl 1-(2-  
10 ethylhexyl)monoperoxy carbonate, *oo-t*-amyl *o*-(2-ethylhexyl)  
11 monoperoxy carbonate, or a mixture thereof.
- 1 5. The process of claim 2, where the diacylperoxide curing agent is  
2 diisononanoyl peroxide, decanoyl peroxide, lauroyl peroxide, succinic acid

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- 3 peroxide, benzoyl peroxide, or mixture thereof; and, where the peroxydicarbonate  
4 curing agent is di(n-propyl)peroxydicarbonate, di(sec-butyl)peroxydicarbonate,  
5 di(2-ethylhexyl)peroxydicarbonate, or a mixture thereof.
- 1 6. The process of claim 2, where the ketone peroxide curing agent is 2,4-  
2 pentanedione peroxide; and, where the hydroperoxide curing agent is 2,5-  
3 dihydroperoxy-2,5-dimethylhexane, cumene hydroperoxide, *t*-butyl hydroperoxide,  
4 *t*-amyl hydroperoxide, or a mixture thereof.
- 1 7. The process of claim 2, where the peroxyketal curing agent is *n*-butyl-4,4-di-  
2 (*t*-butylperoxy)valerate, 1,1-di-(*t*-butylperoxy)-3,3,5-trimethyl-cyclohexane, 1,1-di-  
3 (*t*-butylperoxy)-cyclohexane, 1,1-di-(*t*-amylperoxy)-cyclohexane, 2,2-di-(*t*-butyl-  
4 peroxy)-butane, ethyl-3,3-di-(*t*-butylperoxy)-butyrate, *t*-butyl peroctoate, 2,2-di-(*t*-  
5 amylperoxy)propane, ethyl 3,3-di-(*t*-amylperoxy)-butyrate, or a mixture thereof.
- 1 8. The process of claim 1, where the coagent is a polyunsaturated compound.
- 1 9. The process of claim 8, where the coagent is triallyl isocyanurate, triallyl  
2 cyanurate, trivinyl isocyanurate, trimethallyl isocyanurate, tris(diallylamine)-s-  
3 triazine, triallyl phosphite, *N,N*-diallyl acrylamide, hexa-allyl phosphoramidate,  
4 *N,N,N',N'*-tetra allyl terephthalamide, *N,N,N',N'*-tetra allyl malonamide, 2,4,6-  
5 trivinyl methyltrisiloxane, and tri(5-norbornene-2-methylene)cyanurate, or  
6 mixtures thereof.
- 1 10. The process of claim 1, where the fluoroelastomer contains at least one unit  
2 deriving from a bromine-containing olefin, an iodine-containing olefin, or both.
- 1 11. The process of claim 1, where the fluoroelastomer is a copolymer, terpolymer,  
2 or tetrapolymer having polymeric units deriving from tetrafluoroethylene,  
3 chlorotrifluoroethylene, vinyl fluoride, vinylidene fluoride, hexafluoropropylene,  
4 or various combinations or subcombinations thereof, and optionally bromine-  
5 containing olefins, iodo moieties, or combinations or subcombinations thereof.

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- 1 12. The process of claim 11, where the fluoroelastomer is a terpolymer of  
2 vinylidene fluoride, hexafluoropropylene, and tetrafluoroethylene.
- 1 13. The process of claim 11, where the fluoroelastomer is a tetrapolymer of  
2 vinylidene fluoride, hexafluoropropylene, tetrafluoroethylene and bromine-  
3 containing olefin.
- 1 14. The process of claim 11, where the fluoroelastomer latex contains from about  
2 60 to about 73 percent by weight fluoroelastomer on a solids basis.
- 1 15. The process of claim 1, where said step of adding an organic peroxide curing  
2 agent includes adding from about 1 to about 10 parts by weight net curing agent  
3 per 100 parts by weight fluoroelastomer.
- 1 16. The process of claim 1, where step of adding a coagent includes adding from  
2 about 1 to about 10 parts by weight net coagent per 100 parts by weight  
3 fluoroelastomer.
- 1 17. The process of claim 1, further comprising the step of drying the film.
- 1 18. The process of claim 1, where said step of curing occurs at about 130°  
2 about 150°C for about 1 hour.
- 1 19. A curable fluoroelastomer coating composition comprising:  
2 a fluoroelastomer latex, from about 1 to about 10 parts by weight of a  
3 peroxide curing agent per 100 parts by weight fluoroelastomer, from about  
4 1 to about 10 parts by weight of a peroxide cure coagent per 100 parts by  
5 weight fluoroelastomer.
- 1 20. A fluoroelastomer film prepared by the steps comprising:  
2 providing a fluoroelastomer latex;

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- 3 adding an organic peroxide curing agent and coagent to the latex to  
4 form a curable coating composition;  
5 forming a film with the curable coating composition; and  
6 curing the film at elevated temperature.

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